S|C BLACK®

High Performance Indoor/Outdoor Color CCTV Dome Camera User Manual

Products: BLK-CCD203VS, BLK-CCD205VH, BLK-CPD206VH, BLK-CCD223VS, BLK-CCD225VH, BLK-CPD226VH

Please read this manual before using your camera, and always follow the instructions for safety and proper use. Save this manual for future reference.

⚠ **WARNING**

Changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment.

🖐 **CAUTION**

To prevent electric shock and risk of fire hazards:
Use a power source that is within specification only.
Do NOT expose this appliance to rain or moisture.

REGULATORY NOTICE

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:
(1) This device may not cause harmful interference, and
(2) This device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and use in accordance with the instructions, may cause harmful interference to radio communications.

Operation of this equipment in a residential area is likely to cause interference, in which case the user will be required to correct the interference at his own expense.

LEGAL NOTICE

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The recording, transmission, or broadcast of any person's voice without their consent or a court order is strictly prohibited by law.

Supercircuits makes no representations concerning the legality of certain product applications such as the making, transmission, or recording of video and/or audio signals of others without their knowledge and/or consent. We encourage you to check and comply with all applicable local, state, and federal laws and regulations before engaging in any form of surveillance or any transmission of radio frequencies.

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Precautions

Do not install the camera in extreme temperature conditions. Use the camera in environments where temperature is between 14°F and 122°F. Use adequate ventilation in high temperature.

Do not install or use the camera in an environment where the humidity is high. It can cause the image quality to be poor.

Do not install the camera under unstable lighting conditions. Severe lighting changes or flicker can cause the camera to work improperly.

Never use the camera close to a gas or oil leak. These chemicals can damage the camera.

Do not drop the camera or subject it to physical shocks. These can cause malfunctions to occur.

Never point the camera face at strong light. Smear or blooming may occur, and it can damage the CCD.

Do not exposed an indoor camera to rain or spill beverage on it. If it gets wet, wipe it dry immediately. Liquids can contain minerals that corrode electronic components.

Check the power source to ensure that it is within specifications before connecting it to the camera.

SECTION 1
Introduction

SC Black high performance indoor/outdoor CCTV dome cameras feature a very high resolution Sony®
CCD sensor providing 600 TVL, with a 2.8 – 11mm lens, a digital wide dynamic range, dual voltage
range support (24 VAC, 12 VDC), and on-screen display (OSD) for control and setup. These cameras are
available with or without an IR array, and in either a durable plastic or vandalproof enclosure.
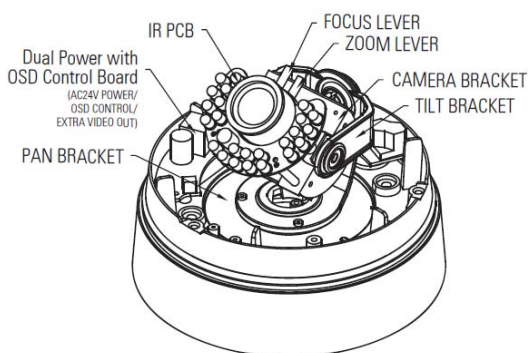
1.1   Cameras with a vandalproof enclosure

1.1.1   Features

- IP67 Rated, aluminum die-cast, rugged vandalproof enclosure
- Wall or ceiling mounting through 3-axis camera bracket
- Flush/surface mountable using the supplied mount adaptor box
- Safety strap keeps dome cover attached while making adjustments
- 1/3" Sony Super HAD CCD II: 410K pixels
- High resolution 600 TV Lines
- Day or day/night operation (ICR)
- Vari-focal lens 2.8~11mm
- Digital wide dynamic range
- Digital noise reduction
- Privacy mask function
- On screen display (OSD)
- Motion detection
- Parking line
- Backlight Compensation (BLC) and High Light Compensation (HLC)
- IR Smart features
- Protocol (Pelco-D, Pelco-P)
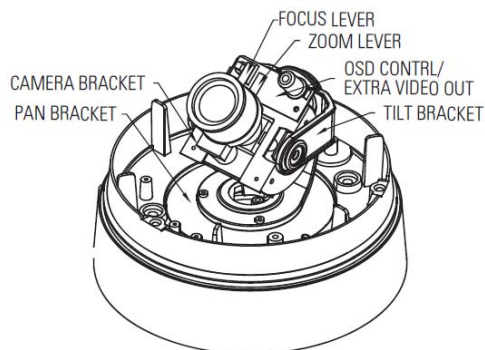
Camera with vandalproof enclosure

Camera with IR array and vandalproof enclosure

1.1.2   What's in the box

Your camera includes the following:

- Security tool
- Machine screws (4)
- Mounting cap
- Mounting screws (4)
- L-wrench
- User manual
- Dome bracket (optional)

Security Tool   Machine Screw   Mount Cap

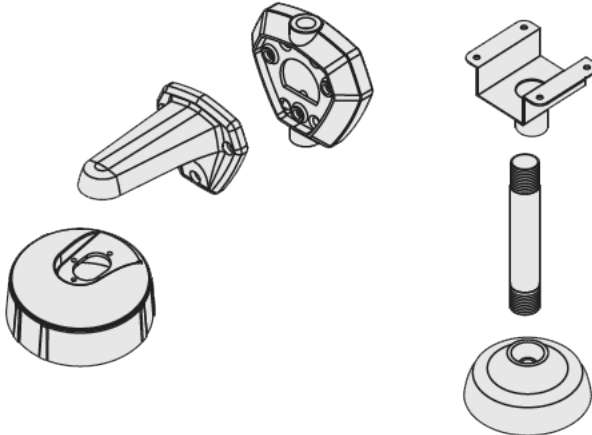Mount Screw   L-wrench   User's Manual

What's in the box

Optional dome bracket for wall and ceiling mounting

1.1.3   Tools you need

To install the camera you will need:

- 12 VDC or 24 VAC power source
- Tools for mounting the camera

1.2   Cameras with a plastic enclosure

1.2.1   Features

- Wall or ceiling mounting through 3-axis camera bracket
- Safety strap keeps dome cover attached while making adjustments
- 1/3" Sony Super HAD CCD II: 410K pixels
- High resolution 600 TV Lines
- Day or day/night (ICR) operation
- Vari-focal lens 2.8~11mm
- Digital wide dynamic range
- Digital noise reduction
- Privacy mask function
- On screen display (OSD)
- Motion detection
- Parking Line feature
- Backlight Compensation (BLC) and High Light Compensation (HLC)
- IR smart features
- Protocol (Pelco-D, Pelco-P)
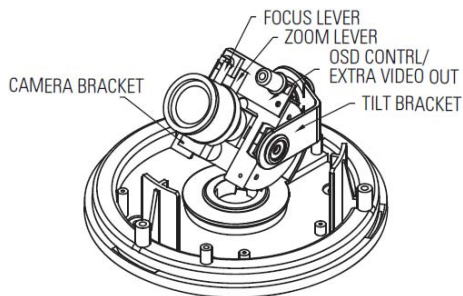
Camera with plastic enclosure
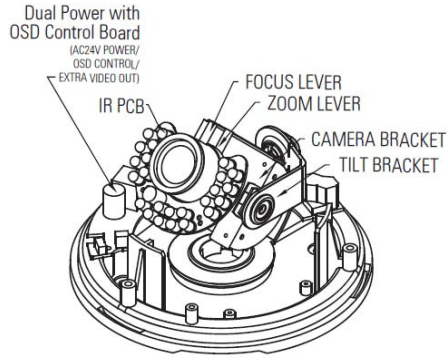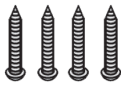
Camera with IR array and plastic enclosure

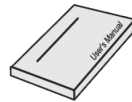## 1.2.2   What's in the box

Your camera includes the following:

- Mounting screws (4)
- L-wrench
- User manual
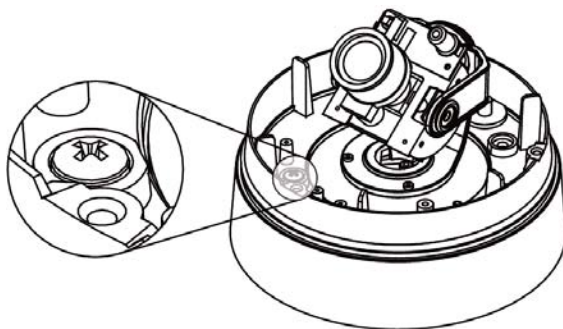- Dome bracket (optional)

What's in the box

Optional dome bracket

SECTION 2
Installation

2.1 General Guidelines

• **Outdoor installations**: Use the rubber rings included with the machine screws (4) to ensure that the unit is sealed properly.

• **Dome/window care**: Handle the dome carefully to prevent scratching. If a scratch appears over the lens, adjust the dome window to move the scratch out of view.

⚠ **CAUTION**   *Keep dome cover and camera lens clean. To avoid smearing, do not expose the camera lens to a strong light source such as the sun or spot lights.*

• **Monitor impedance**: Set the monitor impedance switch to 75Ω.

• **Power supply**: To avoid fire or shock hazard, use only a UL listed power supply.

• **Camera drop cable**: The camera drop cable includes two connectors:
  – **Power connector** (black with green terminal adapter) – The connector is non-polarized. Use AC24V power source (AC24V 1A adapter) or DC 12V power source (DC12V 1A adapter).
  – **Video coax connector** (BNC, yellow) – for transmission of the video signal across coax (75Ω) cable.

Power Connector   Video Coax
                      Connector

2.1.1 What you need

To install the camera you will need:

*   12 VDC or 24 VAC power source
*   Tools for mounting the camera

2.2 Vandalproof camera mounting

The camera can be installed on a junction box or directly to a wall or ceiling.

1. Attach the surface mount bracket to the ceiling or wall using four (4) mounting screws.

2. Connect the dome base to the surface mount bracket using the screws with rubber rings provided.

3. Route the power and video cables to the camera location and attach them to the camera drop cable (see **General guidelines** above).

4. Attach the dome base to the surface mount bracket using the four machine screws provided.

Surface Mount bracket

Mounting Cap

Mounting Screw

Dome Base

Machine Screw With Rubber
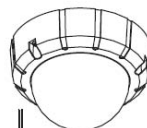
Decoration Ring

Dome cover

L–Wrench

2.3 Plastic camera mounting

1. Connect the dome base to the mounting surface using four (4) screws.

2. Route the power and video cables to the camera location and attach them to the camera drop cable (see **General guidelines** above).

Dome Base

Mounting Screw

Decoration Ring

Dome cover

L-Wrench
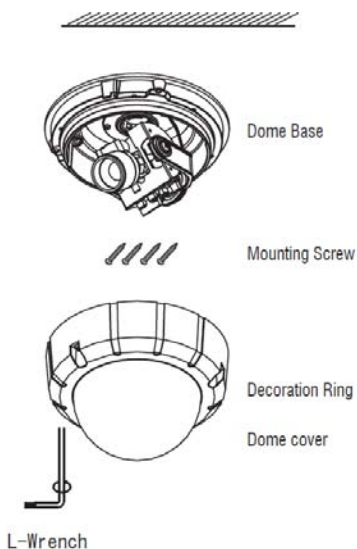
2.4 Camera adjustments

1. Attach a video setup monitor to the yellow RCA (EXTRA VIDEO OUT) connector inside the camera assembly, or setup a remote monitor for viewing video from the camera.

2. Power on the camera and video monitor.

3. While observing video from the camera, adjust the pan/tilt swivel and PCB bracket to aim the camera in the preferred direction.

Ceiling mounting	Wall mounting
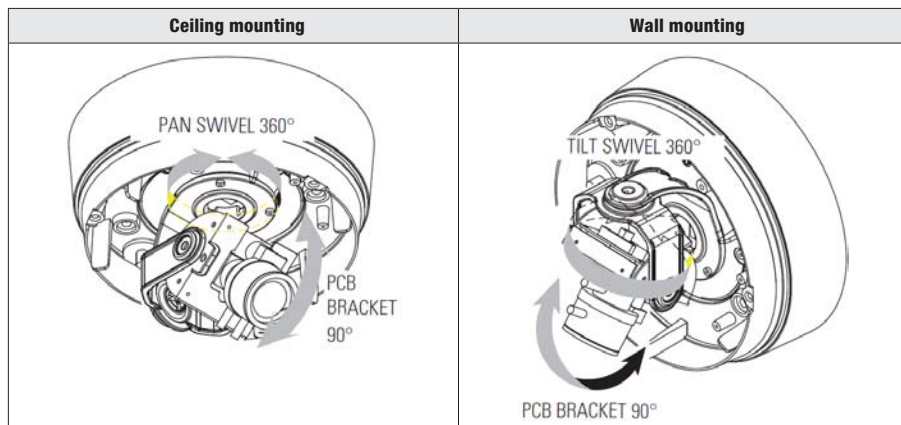
4.   Adjust the image with the focus and zoom levers.

5.   Configure your camera using the software menus in the OSD. See **Software Setup** in the following section of this manual.

6.   Place the dome cover over the base and adjust the dome window. Tighten the captive screws that secure the cover to the base.

7.   Clean the camera dome with an approved glass cleaning solution and a lint free cloth.

   –   Dust can be removed from the unit by wiping it with a soft damp cloth. To remove stains, gently rub the surface with a soft cloth moistened with a mild detergent solution, then rinse and dry it with a soft cloth.
   –   Remove all foreign particles, such as plastic or rubber materials, attached to the camera housing. These may cause damage to the surface over time.

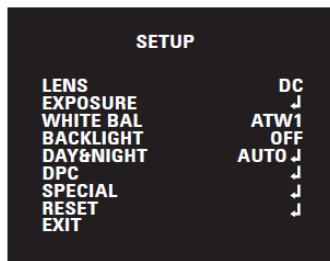|	
⚠️ **CAUTION**	*Do not use benzene, thinner or other chemical products on the camera assembly; these may dissolve the paint and promote damage of the surfaces. Before using any chemical product, read the accompanying instructions carefully.*

SECTION 3
Software Setup

Use the SETUP joy stick on the OSD control panel to navigate through the menu system. Press the joy stick down (toward the camera) to enter the SETUP menu or select an entry, rock the stick up or down to highlight an item in the list, and left or right display the option you want to select.
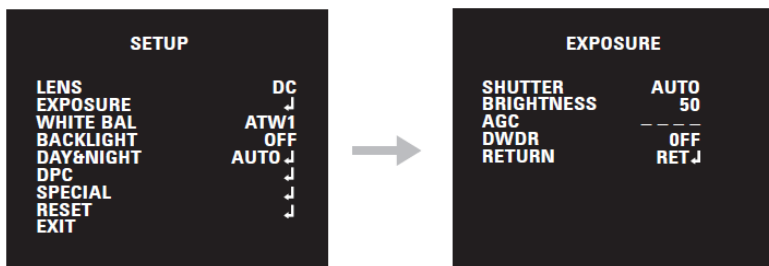
The SETUP menu consists of a list of sub-menus or displays the option selected for a camera function. When sub-menus are available, the ↵ symbol is shown.

```
              SETUP

    LENS              DC
    EXPOSURE           ↵
    WHITE BAL        ATW1
    BACKLIGHT         OFF
    DAY&NIGHT       AUTO ↵
    DPC                ↵
    SPECIAL            ↵
    RESET              ↵
    EXIT
```

3.1   LENS

LENS: Select lens type: DC / VIDEO / MANUAL

3.2   EXPOSURE

```
              SETUP                          EXPOSURE

    LENS              DC              SHUTTER          AUTO
    EXPOSURE           ↵              BRIGHTNESS         50
    WHITE BAL        ATW1             AGC            _ _ _ _
    BACKLIGHT         OFF             DWDR              OFF
    DAY&NIGHT       AUTO ↵            RETURN          RET ↵
    DPC                ↵
    SPECIAL            ↵
    RESET              ↵
    EXIT
```

SHUTTER: You can set the shutter to auto or manual mode. Options are: AUTO, 1/60 sec, FLK, 1/250 sec, 1/500 sec, 1/1000 sec, 1/2000 sec, 1/4000 sec, 1/5000 sec, 1/10000 sec, 1/100000 sec

BRIGHTNESS: You can adjust brightness level. 0 (dark) ~ 255 (bright) steps

AGC: You can select auto gain control level. OFF / LOW / MIDDLE / HIGH

DWDR: The DWDR feature employs intelligent light level control to compensate for strong backlight conditions. DWDR: OFF / ON
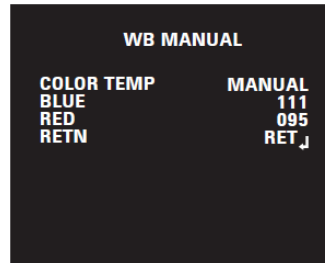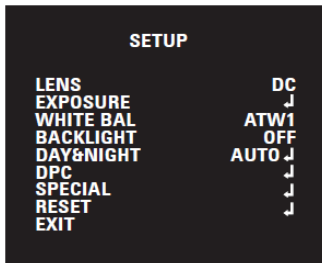

DWDR OFF   **DWDR ON**

3.3   WHITE BALANCE

WHITE BAL: You can select one of the following modes: ATW1 / ATW2 / AWC → SET / MANUAL (INDOOR / OUTDOOR / MANUAL)

- **ATW1**: Automatically adjusts color according to the available lighting for temperature range: 2500°K to 9500°K.
- **ATW2**: Automatically adjusts color according to the available lighting for temperature range: 2300°K to 10000°K.
- **AWC → SET**: It is a fixed white balance mode that may be automatically readjusted only by pressing SET Button in ONE PUSH mode.
- **OUTDOOR**: Set color temperature for Outdoor light (5400°K)
- **INDOOR**: Set color temperature for Indoor light (3200°K)
- **MANUAL**: Color can be corrected when the user increases or decreases "Red Gain" or "Blue Gain".

- **RED GAIN**: Adjust R gain value 0 ~ 255
- **BLUE GAIN**: Adjust B gain value 0 ~ 255

3.4 BACKLIGHT
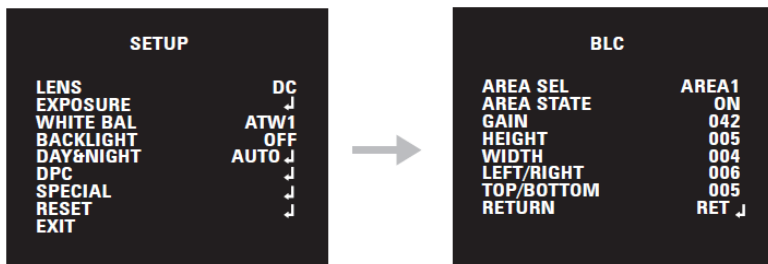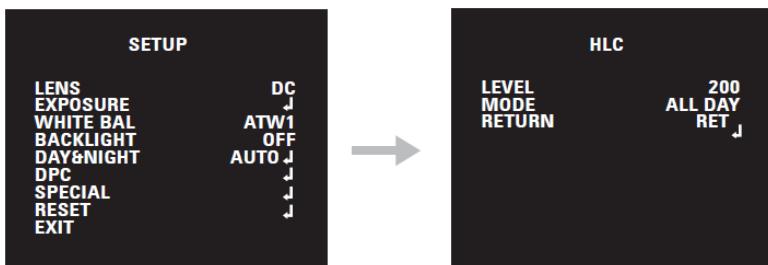

BACKLIGHT: Select OFF / BLC / HLC

BLC (Back Light Compensation)

- **AREA SEL**: Select AREA1, AREA2
- **AREA STATE**: Select OFF / ON
- **GAIN**: Select 0 ~ 255 steps
- **HEIGHT**: Select 0 ~ 15 steps
- **WIDTH**: Select 0 ~ 15 steps
- **LEFT/RIGHT**: Select 0 ~ 15 steps
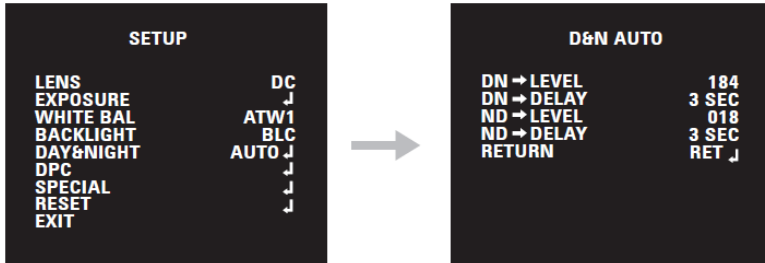- **TOP/BOTTOM**: Select 0 ~ 15 steps

HLC (High Light Compensation)

- **LEVEL**: Select 0 ~ 255 steps

– **MODE**: ALL DAY, NIGHT ONLY

3.5 DAY&NIGHT

SETUP		D&N AUTO	
LENS	DC	DN ➜ LEVEL	184
EXPOSURE	↵	DN ➜ DELAY	3 SEC
WHITE BAL	ATW1	ND ➜ LEVEL	018
BACKLIGHT	BLC	ND ➜ DELAY	3 SEC
DAY&NIGHT	AUTO ↵	RETURN	RET ↵
DPC	↵		
SPECIAL	↵		
RESET	↵		
EXIT			

DAY&NIGHT: Select AUTO / COLOR / B/W / EXT ·

AUTO: Day&Night Auto mode

– **D -> N LEVEL**: 182 ~ 192 steps
– **D -> N DELAY**: 1 ~ 30 SEC
– **N -> D LEVEL**: 0 ~ 10 steps
– **N -> D DELAY**: 1 ~ 30 SEC

COLOR: Day&Night only color mode

B/W: Day&Night black and white (B/W) mode

– **BURST**: OFF / ON
– **IR SMART**: OFF / ON. This option controls the IR LED output level to compensate for object distance. The IR SMART option is used for objects in an area of the image.

IR SMART OFF

IR SMART ON

    R GAIN: 0 ~ 255
    HEIGHT: 0 ~ 15
    WIDTH: 0 ~ 15
    LEFT/RIGHT: 0 ~ 15
    TOP/BOTTOM: 0 ~ 15

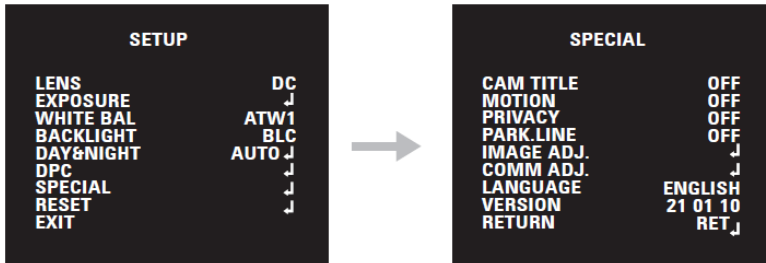–   **IR LEVEL**: HIGH / LOW

EXT: Day&Night EXT mode

3.6 DPC (Dead Pixel Compensation)
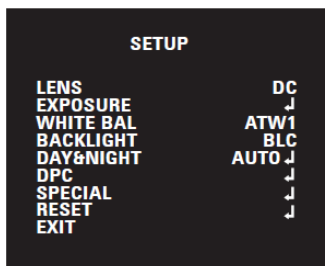
Select DPC for dead pixel compensation processing. DPC can be set to OFF (default) or AUTO. When AUTO is used, the camera will remove defective pixels from an image automatically.

3.7 SPECIAL

CAM TITLE: Select camera title menu (Text edit).

MOTION: Select camera title menu (Text edit)

- – **AREA SEL**: Select AREA1, AREA2, AREA3, AREA4
- – **AREA STATE**: Select OFF / ON
- – **HEIGHT**: Select 0 ~ 15 steps
- – **WIDTH**: Select 0 ~ 15 steps
- – **LEFT/RIGHT**: Select 0 ~ 15 steps
- – **TOP/BOTTOM**: Select 0 ~ 15 steps
- – **DEGREE**: Select 0 ~ 255 steps
- – **VIEW**: OFF / ON
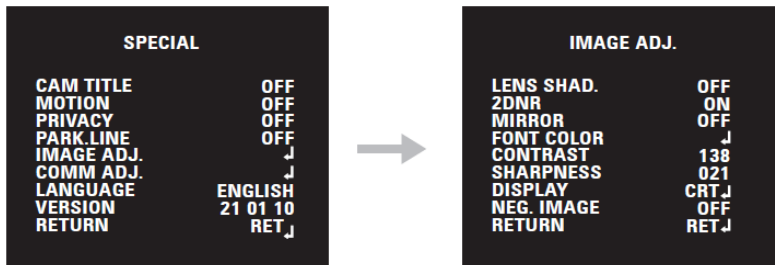
PRIVACY: You can cover an area of the screen.

- – **AREA SEL**: Select AREA1, AREA2, AREA3, AREA4
- – **AREA STATE**: Select OFF / ON
- – **HEIGHT**: Select 0 ~ 255 steps

- **WIDTH**: Select 0 ~ 255 steps
- **LEFT/RIGHT**: Select 0 ~ 255 steps
- **TOP/BOTTOM**: Select 0 ~ 255 steps
- **COLOR**: Select 0 ~ 15 steps

PARK.LINE: You can insert a line on the screen. This feature may be useful when aligning the camera image with objects in the field of view.

- **LT**: You can adjust the top left area on screen. (0 ~ 195 steps)
- **LB**: You can adjust the bottom left area on screen. (0 ~ 194 steps)
- **RT**: You can adjust the top right area on screen. (0 ~ 194 steps)
- **RB**: You can adjust the bottom right area on screen. (0 ~ 194 steps)
- **F**: You can adjust the front area on screen. (0 ~ 68 steps)
- **N**: You can adjust the near area on screen. (0 ~ 68 steps)
- **T**: You can adjust the parking line thickness. (0 ~ 15 steps)

SPECIAL	
CAM TITLE	OFF
MOTION	OFF
PRIVACY	OFF
PARK.LINE	OFF
IMAGE ADJ.	
COMM ADJ.	
LANGUAGE	ENGLISH
VERSION	21 01 10
RETURN	RET↵

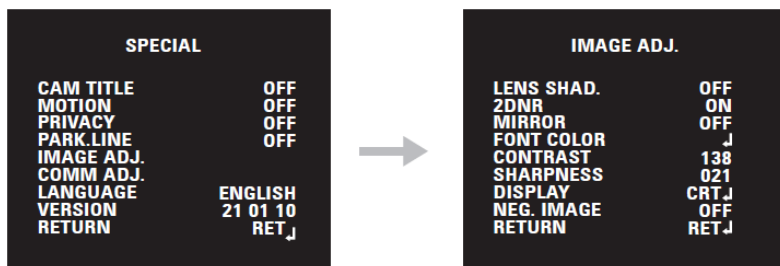| IMAGE ADJ.	
LENS SHAD.	OFF
2DNR	ON
MIRROR	OFF
FONT COLOR	↵
CONTRAST	138
SHARPNESS	021
DISPLAY	CRT↵
NEG. IMAGE	OFF
RETURN	RET↵

IMAGE ADJ.: You can adjust camera image.

- **LENS SHAD**: LEVEL: 0 ~ 255 steps
- **2DNR**: (on-screen Digital Noise Reduction) (OFF/ON)
- **MIRROR**: (reverse the camera image horizontally) (OFF/ON)

MIRROR OFF   **MIRROR ON**

- **FONT COLOR**:
  FONT: 16 colors (0 ~ 15 steps)
  ID & TITLE: 0 ~ 15 steps
- **CONTRAST**: You can adjust contrast on screen. (0 ~ 255 steps)
- **SHARPNESS**: You can adjust camera image for clarity. (0 ~ 31 steps)
- **DISPLAY**: You can adjust camera output for the display type. (CRT / LCD / USER)
  CRT (Cathode Ray Tube, Braun tube). PED LEVEL: 0 ~ 63 steps, COLOR GAIN: 0 ~ 255
  steps
  LCD (Liquid Crystal Display)
    GAMMA: 0.05 ~ 1.00 steps
    PED LEVEL: 0 ~ 63 steps
    COLOR GAIN: 0 ~ 255 steps
   USER
    GAMMA: 0.05 ~ 1.00 steps
    PED LEVEL: 0 ~ 63 steps
    COLOR GAIN: 0 ~ 255 steps
- **NEG.IMAGE**: You can invert a color image, or a black and white image. (OFF/ON)
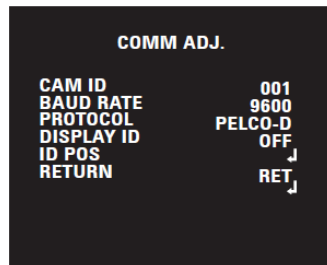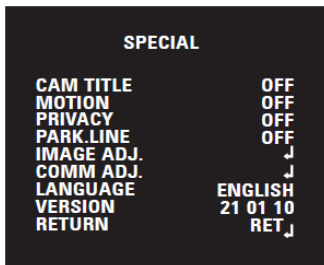
COMM ADJ.:

- **CAM ID**: Select the camera ID. 1 ~ 255
- **BAUD RATE**: Select serial communication speed: 2400 / 4800 / 9600 / 19200 / 38400 / 57600 bps
- **PROTOCOL**: Select operating protocol. PELCO-D / PELCO-P
- **DISPLAY ID**: Select display item. OFF/ON
- **ID POS**: You can adjust ID position on screen.

LANGUAGE: You can select language. ENGLISH / CHINESE

VERSION: Factory vision.

RESET: Set the camera options to the factory default settings.

SECTION 4
Specifications

Table 1. Model Differences

Indoor	Outdoor	TDN	IR
BLK-CCD203VS	BLK-CCD223VS	--	--
BLK-CCD205VH	BLK-CCD225VH	√	--
BLK-CPD206VH	BLK-CPD226VH	√	√

TDN: True Day & Night, uses an IR cut filter instead of switching the image to black and white.
IR: Built-in infrared LED array

Table 2. Component Specifications

Component	Value
Image Sensor	1/3" SONY Super HAD CCD II
Total Pixels	811(H) × 508(V)
Scanning system	2:1 interlace
Scanning frequency	15.734KHz(H), 59.94Hz(V)
Sync system	Internal
Resolution	Max 600 TV lines in color, 650 TV lines in B/W
Min. Illumination	Color: 0.3 lux , BW: 0.1 lux (0 lux @ IR_LED on)
Video output	1.0 Vp-p (75 ohm, composite)
S/N ratio	> 50dB (AGC off)
Exposure	Shutter/Brightness/AGC/DWDR
Lens	DC / VIDEO / MANUAL
Gain control	Off / Low / Middle / High
Shutter speed	1/60 ~ 1/100,000 sec
DWDR	Off / On (0 ~ 35 steps)
Flickerless	Off / On
Brightness	0 ~ 255 steps
White balance	ATW1 / ATW2 / AWC / Outdoor / Indoor / Manual
BLC	Off / BLC / HLC
BLC	Area / gain selectable
HLC	All Day / Night / (0~255 steps)

Component	Value
Day&Night	Auto / Color / BW / Ext
Auto	Level / Delay selectable
BW	Burst off/on / IR Smart off/on (Gain/level selectable)
DPC	Dead Pixels Compensation
Special	Title / MD / PM / Parking / Image / Comm / Language / Version
Cam Title	Text edit
Motion	Off / On (4 position)
Privacy	Off / On (8 position)
Park. Line	Off / On (variable size)
Language	English / Chinese
Image ADJ	Lens Shad / DNR / Mirror / Font color / Contrast / Sharpness / Display / Neg. Image
Lens Shading	Off / On (0~255 steps)
DNR	Off / On
Mirror	Off /On
Font Color	ID & Title / OSD font color selectable
Contrast	0~255 steps
Sharpness	0~31 steps
Display	CRT / LCD / User
Negative Image	Off / On
Power Source	AC24V / DC12V
Power Consumption	100mA
Power Input	Connector
Video Output	Connector
Operating Temperature	+14°F ~ +122°F (-10°C ~ +50°C)
Operating Humidity	0 ~ 86% (non-condensing)
Storage Temperature	-4°F ~ +140°F (-20°C ~ +60°C)

APPENDIX A
Troubleshooting

Problem	Solution
Nothing appears on the screen.	- Check the power connections. - Check the video cable connections. - Ensure that the lens mode is set to DC (VIDEO).
The video image is not clear.	- Clean the lens with a soft, clean cloth. - Adjust the monitor screen for room lighting conditions. - Move the camera if necessary.
The screen is dark.	- Adjust the contrast feature of the monitor. - If you have an intermediate device, set the 75Ω /Hi-Z properly, and check the terminals.
The MOTION DETECTION function is not working	- Is "MOTION DETECTION" mode turned on? - Is the MD Sensitivity set too low? Increase the sensitivity. - Check the setting of the MD AREA.
The WDR function is not working	- Is the WDR level too low? - Is the AE Mode set to MANUAL? WDR is disabled in MANUAL exposure mode.
Colors are not quite right.	- Is the camera facing directly into sunlight or fluorescent light? - Is the auto iris lens is being used? - Check the connection of the lens connector cable.
The Day&Night function doesn't work.	- Is the AGC (EXPOSURE menu) set to OFF? The Auto Day&Night Function doesn't work if the AGC is OFF.

APPENDIX B
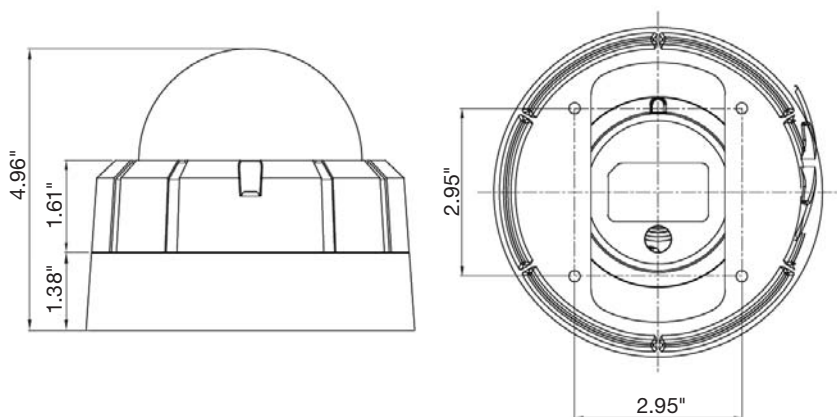# Camera Dimensions

All dimensions shown below are in millimeters.

Camera with vandalproof housing

Camera with plastic housing